

# Constant effects in controlled judgment data

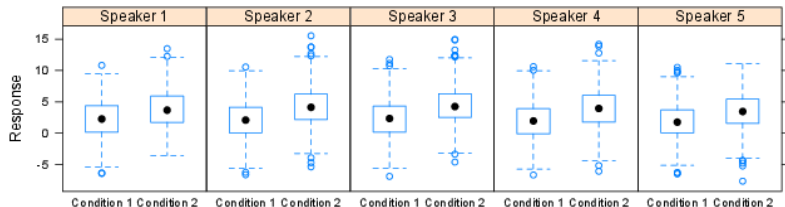
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(Based on joint work with Anders Holmberg and Nanna Haug Hilton)

July 6, 2013

# Kinds of Knowledge of Language

- **Focus:** The relationship of representational/structure-building knowledge of language to probabilistic knowledge of language (Chomsky, 1957, 1975; Labov, 1969; Cedergren and Sankoff, 1974; Sankoff and Labov, 1979; Rumelhart and McClelland, 1987; Kroch, 2001; Manning, 2003; Yang, 2004).



## Different approaches

- ▶ Connectionist/exemplar models (Rumelhart and McClelland, 1987; Pierrehumbert, 2001; Bod, 2006).

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- ▶ Stochastic OT (Boersma and Hayes, 2001; Clark, 2004).

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- ▶ Partially ordered OT grammars (Anttila, 1997).
- ▶ Combinatorial variability (Adger, 2006; Adger and Smith, 2010).

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- ▶ Combinatorial variability (Adger, 2006; Adger and Smith, 2010).
- ▶ Competing grammars (Kroch, 1989, 1994, 2001; Embick, 2008; Yang, 2000, 2004, 2010).

# Probabilities over structure

- ▶ Any such theory needs to be able to model probabilistic knowledge of abstract representations/general forms, not just surface strings (Kroch, 1989; Bybee and McClelland, 2005; Manning, 2003; Yang, 2004).

# Probabilities over structure

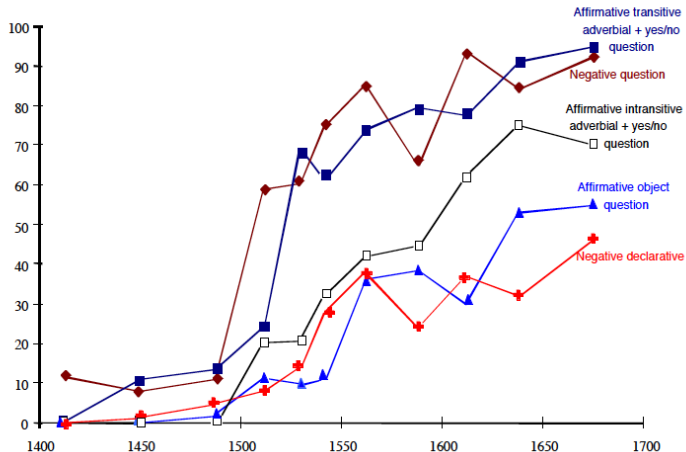
- ▶ Any such theory needs to be able to model probabilistic knowledge of abstract representations/general forms, not just surface strings (Kroch, 1989; Bybee and McClelland, 2005; Manning, 2003; Yang, 2004).
  - ▶ Structural priming (Ferreira and Bock, 2006; Pickering and Ferreira, 2008).



# Probabilities over structure

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  - ▶ Structural priming (Ferreira and Bock, 2006; Pickering and Ferreira, 2008).
  - ▶ Constant rate effects: contextual effects on variation constant across time (and therefore speakers) (Kroch, 1989; Santorini, 1993; Pintzuk, 1999; Fruehwald et al., 2009).

# The Constant Rate Effect



# The Constant Rate Effect

- ▶ Evidence for this kind of effect has so far come from change across generations in production data. We might expect similar constancy:
  - ▶ across speakers in synchronic variation; and
  - ▶ in gradient intuitions of well formedness (Bresnan and Ford, 2010).

## Goals of this talk

- ▶ This talk reports on two controlled judgment experiments designed to test predictions of the “defective intervention” approach to passive symmetry. Two main goals:
  1. Examine evidence for constancy in contextual effects in gradience in intuitions of well-formedness within a population.
  2. Report on some implications of controlled judgement data for theories of passive symmetry.

# Outline

1. Introduction
2. The passive symmetry problem
3. Cross-dialectal differences in British English
4. Cross-dialectal differences in Norwegian
5. Conclusion

# The passive symmetry problem

- ▶ Cross-linguistic/cross-dialectal variation in the availability of theme passivisation out of a double object construction (DOCs) (Anagnostopoulou, 2003; Baker, 1988; Doggett, 2004; Larson, 1988; McGinnis, 1998, 2001; Woolford, 1993).

(1) She gave John a book.

## Asymmetric passive languages

- Fula, Swahili, German, Chichewa, Danish (Baker, 1988; Bresnan and Moshi, 1990; Postal, 2004; Woolford, 1993).

(2) *Danish* (Holmberg and Platzack, 1995)

- a. Jens blev givet bog-en.  
Jens was given book-the  
'Jens was given book-the.'
- b. \*Bog-en blev givet Jens.

# Symmetric passive languages

- ▶ Norwegian, Swedish, Br. English dialects, Kinyarwanda (Baker, 1988; McGinnis, 1998, 2001; Woolford, 1993).

(3) *Norwegian* (Haddican and Holmberg, 2012)

- a. Jens ble gitt bok-en.  
Jens was given book-the  
'Jens was given book-the.'
- b. Bok-en ble gitt Jens.



## The case-based approach

- ▶ In passives, case on objects is “absorbed” by passive morphology. Derived subjects move to subject position to get ergative/nominative case (Jaeggli, 1986; Roberts, 1987).

(4) [The pizza] was eat-en [~~the pizza~~] .

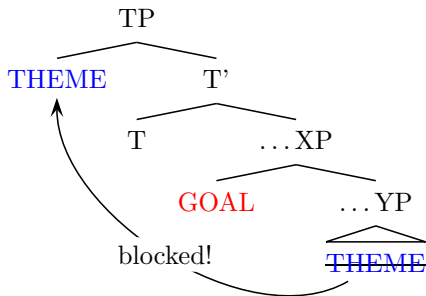


- ▶ In asymmetric passive languages, case destined for the Goal gets absorbed and Goal passivizes.
- ▶ In symmetric passive languages, case for either object can be absorbed with the consequence that either object may passivize (Baker, 1988; Citko, 2008; Woolford, 1993).

## The locality approach

- In asymmetric passive languages, theme-passivization blocked by goal (Anagnostopoulou, 2003; Doggett, 2004; McGinnis, 1998, 2001; Jeong, 2007; Ura, 1996).

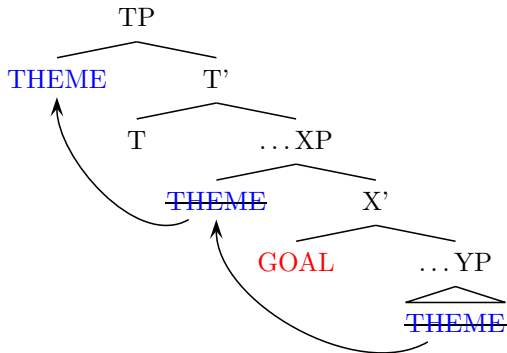
### (5) *Asymmetric passive languages*



## The locality approach

- Symmetric languages have an “escape hatch.”

### (6) *Symmetric passive languages*



## Evidence for escape hatch movement

- **Theme-passivization and Theme-Goal OS in Mainland Scandinavian** (Anagnostopoulou, 2003, 2005; Bobaljik, 2002, 2005; Josefsson, 2003).

	Theme passives	Theme-Goal Object Shift
Swed./Norw.	OK	some spkrs.
Danish	No	No

## Evidence for escape hatch movement

### ► Object shift in Mainland Scandinavian

(Anagnostopoulou, 2003, 2005; Bobaljik, 2002, 2005; Josefsson, 2003).

#### (7) *Danish* (Anagnostopoulou, 2005)

- a. Peter viste hende den jo.  
Peter showed her it indeed  
Peter indeed showed it to her.
- b. \*Peter viste den hende jo.

#### (8) *Swedish* (Anagnostopoulou, 2005)

- a. Jag gav honom den inte.  
I gave him it not  
I didnt give it to him.
- b. %Jag gav den honom inte.

## Evidence for escape hatch movement

- **Theme-passivization and Theme-Goal orders in Br. English dialects** (Anagnostopoulou, 2003; Doggett, 2004; Haddican, 2010; Haddican and Holmberg, 2012; Woolford, 1993).

(9) *Passives*

- a. %The ball was given my sister.
- b. My sister was given the ball.

(10) *Actives*

- a. %She gave it me.
- b. She gave me it.

## Predictions of locality approach

- ▶ Locality approaches make a strong prediction about cross-speaker variation in languages like Mainland Scandinavian and BrE, namely that acceptability of Theme-Goal orders in active and passive contexts will covary across speakers in these languages.
- ▶ We report on two judgement experiments—one with speakers of Br. English ( $N=137$ ) and one with speakers of Norwegian ( $N=505$ )—designed to test this prediction.

## Cross-speaker variation in Theme-passivization and Theme-Goal ditransitives (from Haddican & Holmberg 2012)

### (11) *Passives*

- a. %The ball was given my sister.
- b. My sister was given the ball.

### (12) *Actives*

- a. %She gave it me.
- b. She gave me it.





## Cross-speaker variation in Theme-passivization and Theme-Goal ditransitives

- ▶ Theme-goal order most readily accepted with two weak pronouns. Some speakers also allow for a full DP goal.

(13) %I think he will carry this island home in his pocket, and give **it** **his son** for an apple.

(Shakespeare, The Tempest, II, i, 92-93)

- ▶ Sentences with two full DP themes are generally bad (Myler, 2011).


(14) %She gave **the ball** **her**.

(15) %She gave **the ball** **my sister**.

## DOCs or prepositional datives

- **Hypothesis 1:** Theme-Goal orders are DOCs.

(16) She gave **it** **me** **it**.



- **Hypothesis 2:** Theme-Goal orders are prepositional datives with a silent *to* (Kayne, 2005; Collins, 2007; Myler, 2011).

(17) %She gave it TO me.

(18) %I want to go TO Chessington.

## Verb class restrictions

► *Whisper/haul/donate*-class verbs:

- (19) She {whispered/donated} **it** to **me**. [Prep. Dat.]  
(20) She {\*whispered/\*donated} **me it**. [DOC]  
(21) She {%whispered/%donated} **it me**. [Theme-Goal]

► *Refuse*-class verbs:

- (22) She {\*refused} **it** to **me**. [Prep. Dat.]  
(23) She {refused} **me it**. [DOC]  
(24) She {%refused} **it me**. [Theme-Goal]

## Method: subjects

- ▶ 137 self-described native speakers of English
- ▶ 18-63 ( $M=27.5$ ,  $SD=11.6$ )
- ▶ Subjects recruited online by researchers in 2010. We did not require subjects to be linguistically naive.

## Method: materials

### ► *Subdesign 1: Passives*

- 1 factor with 2 levels: Theme passive vs. Goal passive:  
*It* was given *her*. vs. *She* was given *it*.

### ► *Subdesign 2: Actives*

- 2 factors each with two levels: object order (Theme-Goal vs. Goal-Theme) and verb class (*give*-class vs. *donate*-class verbs):

Verb class	Theme-Goal	Goal-Theme
<i>give</i> -class	She gave <i>it</i> <i>me</i> .	She gave <i>me</i> <i>it</i> .
<i>donate</i> -class	She hauled <i>it</i> <i>me</i> .	She hauled <i>me</i> <i>it</i> .

## Method: materials

- ▶ All Theme/Goal arguments 3rd pers. pronouns.  
Theme/Goal interpretation biased using animate pronouns (for Goals) and inanimate pronouns (for themes).
- ▶ 8 lexicalizations created for each of 6 condition, blocked and assigned to lists by Latin square. Subjects pseudo-randomly assigned to lists by software.
- ▶ 4 items/condition/subject x 6 condition=24 experimental sentences, pseudo randomized with 24 fillers.

## Method: procedure

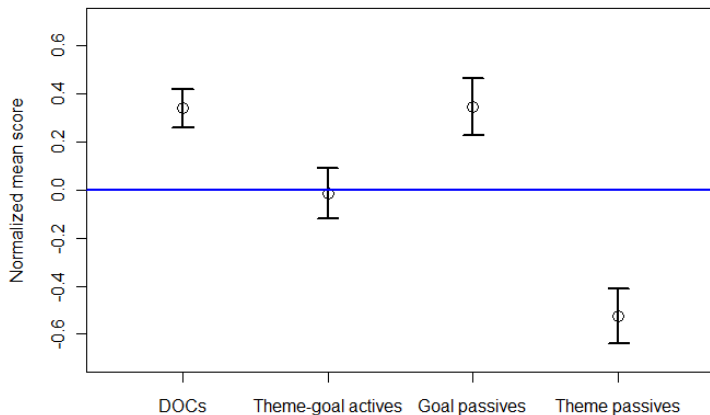
- ▶ Self-paced online magnitude estimation procedure in Autumn 2010 using WebExp2.2, with “modulus”:

(25) ?Who did you see some picture of?

- ▶ Scores normalized by dividing each items score by modulus score. Scores then transformed by taking base-10 logarithm and then z-scores of these log-transforms (Mayo et al., 2008).
- ▶ 29 subjects removed whose *donate-give* class contrast for theme-goal orders wasn't at least as big as the smallest contrast in the sample for DOCs.

## Results

*Figure 1:* Mean scores and 95% CIs for four conditions



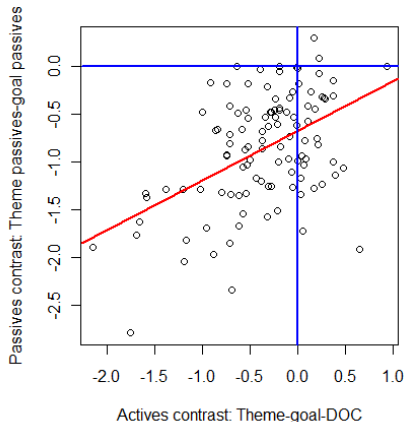


## Correlating Theme-Goal acceptance in active and passive contexts

**Figure 2:**

By-speaker  
Theme-Goal vs.  
Goal-Theme  
contrasts in active  
and passive  
contexts

$r=.48$ ,  $p=1.74e-07$



## A challenge for the locality approach

- ▶ In Theme-Goal ditransitives in active contexts, the Theme must be pronominal, but Themes in spec,TP need not be. The locality approach has trouble expressing this pronoun/DP contrast *only in active contexts*.

### (26) *The locality approach*

[The ball] was given [the ball] [my sister] [the ball].



- ▶ We propose a case based approach that allows for a more familiar understanding of these facts, i.e. that pronominal licensing involves movement in a way that full DPs do not, akin to, e.g., Romance clitic movement.

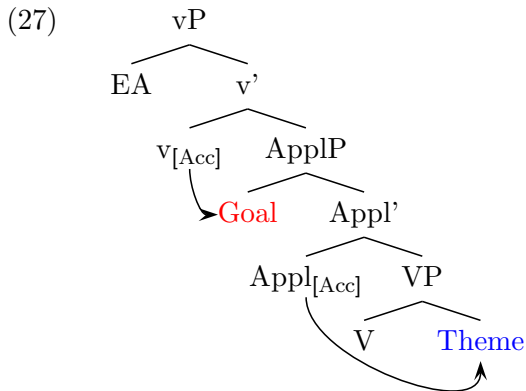
## An inventory of grammars

- The above results suggest the following inventory of grammars:

Grammar	Theme-Goal orders in Active Contexts	Theme-Goal orders in Passive Contexts
1	*	*
2	Ok	Ok

# Grammar 1

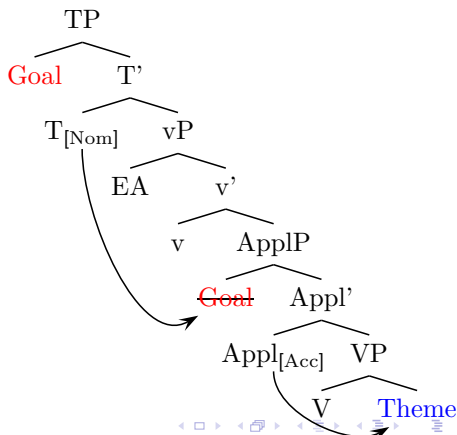
- Assume DOCs merged in a high applicative structure (Bruening, 2010).



# Grammar 1

- **Passives:** *v* is “defective” in that it doesn’t assign case (Burzio, 1986; Chomsky, 1995). The still-case-less Goal moves to TP instead.

(28)

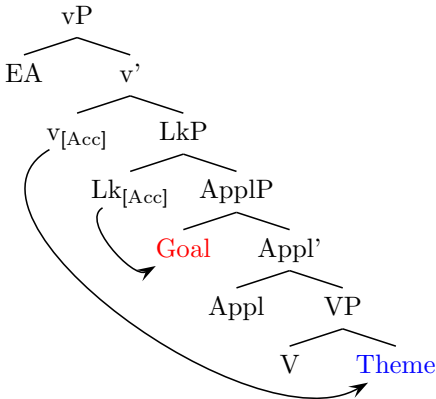


## Grammar 2

- ▶ Differs minimally from Grammar 1 in that Appl is not merged with a case-assigning  $\phi$ -probe.
- ▶ This  $\phi$ -probe is instead on a higher “Linker” head (Lk) above Appl (Baker and Collins, 2006; Jeong, 2007; Johnson, 1991)
- ▶ This will mean that in active contexts, Lk will agree with the Goal and v will agree with Theme (across the goal!).

## Grammar 2

(29) *Agreement with Lk and v*



## Absence of defective intervention

- ▶ The analysis entails absence of defective intervention: the Goal, previously probed by Lk, does not block agreement between v and the Theme (Broekhuis, 2007; Bruening, 2012)

(30) ??Jean semble à Marie avoir du talent.  
Jean seems to Marie to have of talent  
'Jean seems to Marie to have talent.'  
(McGinnis, 1998)

(31) John seems to Mary [~~John~~ to be nice.]  
(Collins, 2005)



## Clitic incorporation

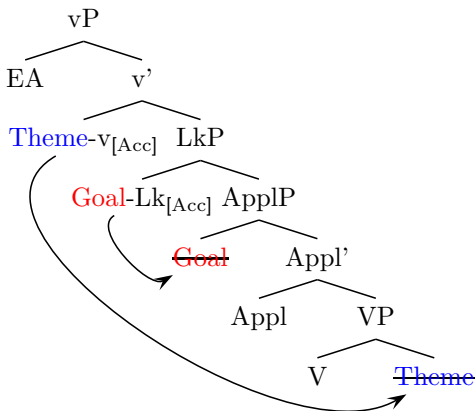
- ▶ Following Roberts (2010), we assume pronouns are  $\phi$ Ps, consisting exclusively of  $\phi$  features.
- ▶ Through agreement and feature valuation, they become duplicates of their probes, formally a 2-member chain. Through ordinary “chain reduction” only the higher copy spells out.
- ▶ Lexical DPs will not “incorporate” in this way since it will have some material not present on the probe (lexical root).

$$(32) \quad [ \underbrace{\phi\text{-probe}_{[F_1, \dots F_{i+n}]} \dots [ \text{Pronoun}_{[F_1, \dots F_{i+n}]} ]}_{\uparrow} ]$$

## Clitic incorporation

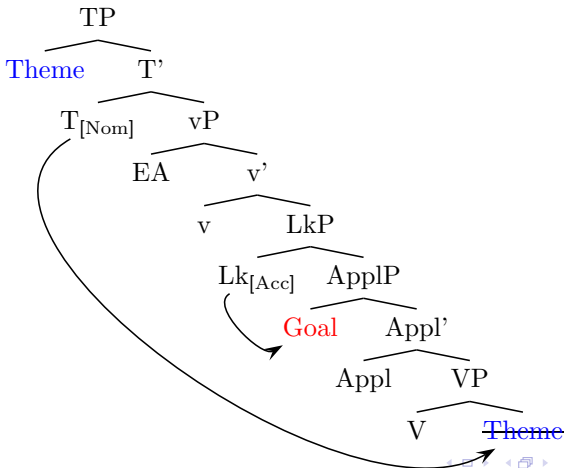
- Agreement with Lk and v followed by chain reduction yields Theme-Goal order for weak pronouns

(33)



## Grammar 2: Passives

(34)



## Summary: British English dialects

- ▶ The distribution of Theme-Goal orders in active and passive contexts modelable as competition between two grammars that differ minimally in the locus of case on the “additional” argument in DOCs.
- ▶ Unavailability of Theme passives in relevant idiolects not due to defective intervention (Broekhuis (2007); Bruening (2012); Haddican and Holmberg (2012) pace Anagnostopoulou (2003); McGinnis (1998))

## Anagnostopoulou's relationship between Theme passives and Theme-Goal OS

- See also: Anagnostopoulou (2003, 2005); Bobaljik (2002, 2005).

(35) *Norwegian: Passives* (Haddican and Holmberg, 2012)

- a. Jens ble gitt bok-en.  
Jens was given book-the  
'Jens was given book-the.'
- b. Bok-en ble gitt Jens.

(36) *Norwegian: OS*

- a. Elsa ga ham den ikke.  
Jens was given book-the  
'Jens was given book-the.'
- b. %Elsa ga den ham ikke.

## Object shift

### (37) *Norwegian*

- a. Hun sa (meg<sub>i</sub>/ \*MEG<sub>i</sub>/ \*[meg og deg]<sub>i</sub>) ikke t<sub>i</sub>.  
she saw me/ ME/ me and you not  
'She didn't see me/ME/me and you.'
- b. Hun sa ikke (\*meg/ MEG/ [meg og deg]).  
she saw not me/ ME/ me and you  
'She didn't see me/ME/me and you.'
- (Adapted from Thráinsson (2001))

## Object shift

- ▶ Like in English, the base order for full DPs in DOCs is Goal-Theme.

(38) *Swedish*

- a. Jag gav Johan en bok.  
I gave Johan a book  
'I gave John a book.'
- b. \*Jag gav en bok Johan.  
I gave a book Johan  
'\*I gave a book John.'

(Holmberg and Platzack, 1995, 188)

## Object shift

- And, as in English, the Goal c-commands the Theme:

(39) *Swedish*

- a. Kann du inte ge Johan<sub>i</sub> sina<sub>i</sub> kläder?  
Can you not give Johan his(REFL) clothes  
Cant you give John his clothes?
- b. \*Kann du inte ge sin<sub>i</sub> rätta ägare tavlan<sub>i</sub>?  
Can you not give its rightful owner painting-the  
Cant you give its rightful owner the painting?  
(Holmberg and Platzack, 1995, 191)



## Method: subjects

- ▶ 505 self-described native speakers of Norwegian.
- ▶ 18-81 ( $M=38.9$ ,  $SD=11.5$ ).
- ▶ Subjects recruited online by researchers. We did not require subjects to be linguistically naive.

## Method: materials

- ▶ 2x3 design crossing argument order (Theme-Goal vs. Goal-Theme) with context (Passive, Active OS and Active, no-OS):

context	Theme-Goal	Goal-Theme
Passives	Den ble gitt ham. 'It was given him.'	Han ble gitt den. 'He was given it.'
Act. OS	Elsa ga den ham ikke. 'Elsa didn't give him it.'	Elsa ga ham den ikke. 'Elsa didn't give him it.'
Act. ¬OS	Elsa har ikke gitt ham den. 'Elsa hasn't given him it.'	Elsa har ikke gitt ham den. 'Elsa hasn't given him it.'

## Method: materials

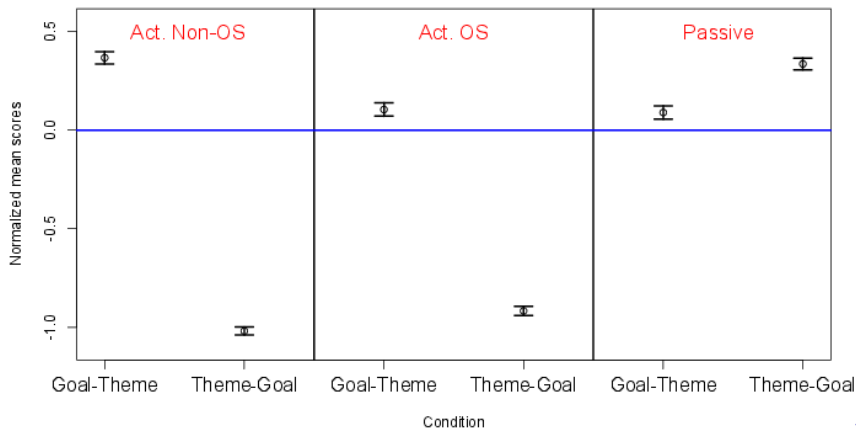
- ▶ All Theme/goal arguments 3rd pers. pronouns. Theme/Goal interpretation biased using animate (for Goals) and inanimate (for Themes) pronouns.
- ▶ 12 lexicalizations created for each of 6 condition, blocked and assigned to lists by Latin square. Subjects pseudo-randomly assigned to lists by software.
- ▶ 4 items/condition/subject x 6 condition=24 experimental sentences, pseudo-randomized with 24 fillers.

## Method: procedure

- ▶ Self-paced online survey in Spring 2013 using Ibex Farm (Drummond, 2013)
- ▶ Subjects judged sentences on 11-point (0-10) scale, with endpoints labeled *dårlig* ‘bad’ and *god* ‘good’ respectively.
- ▶ Results normalized by converting to z-scores based on by-speaker means and standard deviations of fillers.

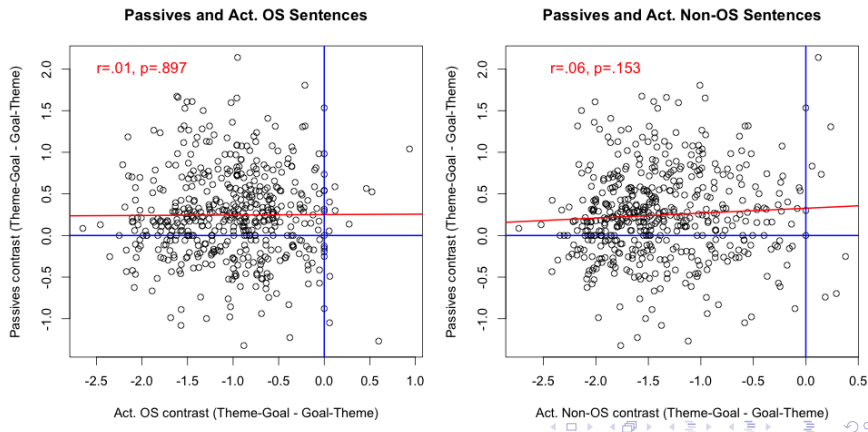
## Results

*Figure 3:* Mean scores and 95% CIs for six conditions



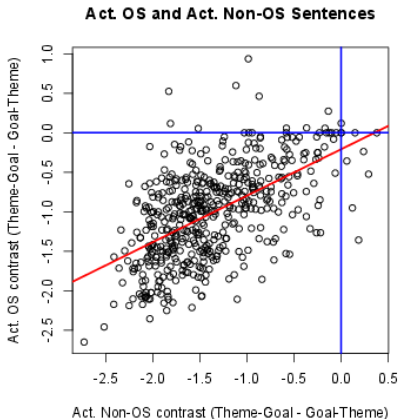
## Results

*Figure 4:* By-speaker contrasts in Actives and Passives



## Correlating Theme-Goal acceptance in active and passive contexts

**Figure 5:** By-speaker  
Theme-Goal vs.  
Goal-Theme contrast in  
active and passive  
contexts  
 $r=.57$ ,  $p=2.2e-16$



## An inventory of grammars

- ▶ Figure 5 shows a strong cross-speaker correlation between theme-goal orders in OS and vP-internally.
- ▶ A plausible inference is that the movement responsible for Theme-Goal orders vP-internally feeds OS (Fox and Pesetsky, 2005) . We don't attempt an analysis of these issues here.



## An inventory of grammars

- The results in figure 4 suggest the following inventory of grammars:

Grammar	Theme-Goal orders in Active Contexts	Theme-Goal orders in Passive Contexts
1	*	*
2	Ok	Ok
3	Ok	*
4	*	Ok

## The geographic distribution of Theme-Goal preference

*Figure 6:*  
Preference  
for  
Theme-Goal  
orders in OS  
by quartile



## Grammars expressing the cross-dialectal variation

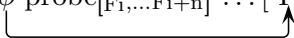
- ▶ Figure 4 suggests no correlation between acceptability of Theme-Goal orders in active contexts and Theme-Goal orders in Passives contra the locality approach.
- ▶ An additional difficulty for the locality approach concerns the pronoun/DP contrast. As in Br. English, the Theme must be pronominal in Theme-Goal orders *only in active contexts*.

(40) *The locality approach*

[Bok-en] ble gitt [bok-en] [Jens] [bok-en].  


## Grammars expressing the cross-dialectal variation

- ▶ Assume gradience in acceptability of Theme-Goal orders in passives reflects competition between the Grammars 1 & 2 just as in Br. English.
- ▶ But some additional parameter of variation is needed to account for the fact that the choice of Grammar 1 vs. 2 doesn't correlate with object order in active contexts. We suggest this lies in the incorporability of weak pronouns in Norwegian.

$$(41) \quad [ \phi\text{-probe}_{[F_i, \dots F_{i+n}]} \dots [ \text{Pronoun}_{[F_i, \dots F_{i+n}]} ] ].$$


# Conclusion

1. The controlled judgement data do not bear out predictions of the defective intervention approach to passive symmetry (Anagnostopoulou, 2003).

# Conclusion

1. The controlled judgement data do not bear out predictions of the defective intervention approach to passive symmetry (Anagnostopoulou, 2003).
2. Kroch and colleagues showed that variation and change in abstract structure is visible the constancy in contextual effects across time. Controlled judgment data can be used to measure constancy in contextual effects in synchronic variation, and to identify different grammars posited by learners (Tortora and den Dikken, 2010).

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